

AD 652351

ARMORED FORCE MEDICAL RESEARCH LABORATORY  
Fort Knox, Kentucky

Project No. 1-23  
727-3 GNOML

April 29, 1943

1. PROJECT NO. 1 - Cold Weather Operations; Final Report on Sub-Project No. 1-23 - Test No. OQMG-110. Test of Raincoat with Parka Hood; Poncho; Rainshirt, Knee Length; Raincoat, Synthetic Resin; and Tent Poncho, Sectional.

a. Authority - Letter Headquarters Army Ground Forces, Army War College, Washington, D. C., File 422.3/109 GNRQT-6/34876 dated March 21, 1943, and 1st Ind., Headquarters Armored Force, Fort Knox, Kentucky, File 421.21 (3-21-43) GNOHD dated March 25, 1943.

b. Purpose - To test several types of rain garments and to compare their adequacy with the Raincoat, Synthetic Resin.

2. DISCUSSION:

Considerable dissatisfaction has been expressed over the present raincoat, synthetic resin. The most common complaints arise from its fragility, weak seams, and excessive leakage, especially around the collar and through the cloth itself. Protective garments of new design and of new materials have been developed in an attempt to correct these defects.

Comparative tests of the new garments and of the present GI raincoat were carried out using a light tank company of the 12th Armored Division, Camp Campbell, Kentucky, engaged in field maneuvers. There was rain during nine of the seventeen days in bivouac, with two days of driving rains. In addition to rainy days, there were a number of damp, windy days during which the test coats were worn as wind breakers. The results of the field tests are presented in Appendix 1.

3. CONCLUSIONS:

a. Of the five items tested, the Raincoat with Parka Hood offered the best protection against rain and wind.

b. The Rainshirt, Knee Length, offered excellent protection against wind and rain but had a number of undesirable features.

c. The Tent, Poncho, Sectional, is not suitable either as a raincoat or as a tent.

d. The Poncho is not suitable in its present form.

STATEMENT NO. 1

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4. RECOMMENDATIONS:

a. That the Raincoat with Parka Hood be considered suitable for use by the Armored Force.

b. That consideration be given to the inclusion of an extra length of material, to be attached by means of snaps to the back of the raincoat, in order to provide sufficient length for use of the coat as a ground sheet.

Submitted by:

Captain Steven M. Horvath, Sn C  
Lieutenant Arthur Freedman, M. C.

APPROVED Willard Machle  
WILLARD MACHLE  
Colonel, Medical Corps  
Commanding.

## APPENDIX 1

An acceptable rain garment should offer practically complete protection against rain and wind. The material used in the garment should be water-proof, resistant to tears and abrasions, remain pliable during cold weather, and allow for the construction of tough seams. A hood for protection and to eliminate the dripping of water down the neck is an essential part of the assembly. The lower part of the garment should not billow out in the wind since this interferes with movement and permits the legs to become wet. If a raincoat is also to be used as a ground sheet, a flap can be snapped into the back to provide additional length for that purpose. Accessibility to pockets of inner garments is required.

### Raincoat with Parka Hood

This coat was enthusiastically received. The parka fits over the helmet liner and thus prevents the usual dripping of water from the liner down the neck. The pockets and the double front closure are adequate. There is, however, a gap when sitting in a tank and the legs of drivers get wet. This is possibly an unavoidable difficulty. The resistance of the material to tears and abrasion was equal to that of the rainshirt and definitely superior to that of the Raincoat, Synthetic Resin. The Raincoat with Parka Hood proved to be an excellent wind-breaker and was worn by the subjects for additional protection whenever the day was cold and windy.

The coat was frequently torn in tanks. No raincoat, however, is capable of withstanding snagging on tank projections. This raincoat appears to be the best available, both for ground troops and for tank crews if the latter use a little care in traversing hatch ways.

At the completion of the test, all of the 12 men who had worn the raincoat with parka hood during the test expressed a desire to retain them whereas only a few wanted the rainshirt and none wished to keep their ponchos. Comments from other men of the company indicated that they too would prefer the raincoat with parka hood.

The coat field, M-1943, although not included in this test, would constitute a more serviceable rain garment than any of the raincoats tested, if a hood were provided instead of the collar. This proposal is amplified in the report on OCMG Test 140. (Armored Force Medical Research Laboratory Project 1-22)

### Poncho; and Tent, Poncho, Sectional

Both of these items are unsatisfactory. Neither exclude water from the neck when the precipitation is heavier than a drizzle. The loose flaps interfere with the use of arms and legs, and they are a great hazard in

mounting vehicles such as tanks. Wind lifts the loose flaps, resulting not only in interference with movement, but permits drenching of the legs from the knees down. With ponchos on, considerable difficulty is experienced in going through hatchways of tanks. The material tears readily and the sewn seams are not adequate.

The Tent, Poncho, Sectional is useless as a tent. Its limitations in this respect are discussed more fully in another report. (Report on Sub-project No. 1-22 - Final Report on Test No. OQMG-140)

#### Rainshirts, Knee Length

This item approximates the ideal rain garment from the standpoint of protection against wind and rain. The parka hood is a definite improvement as is the clear sweep of the coat without openings and the minimum of seams. The material is quite resistant to abrasion and offers excellent protection in walking or crawling through brush. The rainshirt has the disadvantage of billowing in the wind and so interfering with activity while allowing the lower legs to become wet. Since the rainshirt is somewhat cumbersome, difficulty is experienced in ascending cliffs or mounting tanks. Like all other raincoats, this one is frequently torn on the various projections on tanks. However, tank drivers liked the rainshirt since it protects the lap from rain while driving. The lack of pockets or even pocket slits is undesirable. The adhesive material used in cementing the "V" at the neck is inadequate. Most of the "V's" pulled loose to some extent during the test.

#### Raincoat, Synthetic Resin

This raincoat is wholly unsatisfactory. It leaks badly, especially through the seams (even when new), tears readily, offers no protection to the head, and has a poor neck closure.

HEADQUARTERS  
ARMY GROUND FORCES  
ARMY WAR COLLEGE  
Washington, D. C.

422.3/109 GNRQT-6/34876  
(3-21-43)

March 21, 1943.

SUBJECT: Test of Raincoats with Parka Hoods; Ponchos; Rainshirts,  
Knee Length; Raincoats; Tent, Ponchos, Sectional.

TO : Chief of the Armored Force, Fort Knox, Kentucky.

1. It is desired that the Armored Force Board test the  
subject items in general accordance with the instructions contained  
in the attached test data sheet No. OCMG-110.

2. Upon completion of the test it is desired that four (4)  
copies of the Armored Force Board report be furnished this head-  
quarters.

By command of LT. GEN. McNAIR:

/s/ C. H. Day  
C. H. DAY,  
Colonel, A.G.D.,  
Asst. Ground Adj. Gen.

421.21 (3-21-43) GNOHD

1st Ind.

S-5-30-43

HEADQUARTERS ARMORED FORCE, Fort Knox, Kentucky, March 25, 1943.

TO: Commanding Officer, Armored Force Medical Research Laboratory,  
Fort Knox, Kentucky.

For compliance.

By command of Lieutenant General DEVERS:

/s/ C. M. Wells  
C. M. WELLS,  
Lieut. Colonel, A. G. D.,  
Assistant Adjutant General